

rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormick in view of Japanese Publication No. 2-92837 to Kuramoto et al; Claims 5, 9, 36-39, and 45-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormick in view of U.S. Patent No. 4,934,112 to Jackson; and Claims 7 and 8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormick in view of U.S. Patent No. 6,187,408 to Bian et al.

Regarding Claim 1, the Office Action asserts on page 5 that:

McCormick teaches that the multiple pieces are hand cut from a larger glass sheet (Fig. 1). The cut pieces are then subjected to the heating and cooling treatment to effect a separation of the ring from the disk. Applicant has merely applied McCormick's teaching of using thermal expansion to separate the pieces twice. Applicant has merely duplicated the same step twice in succession.

It would have been *prima facie* obvious at the time the invention was made to apply McCormick's thermal expansion separating step twice because doing so would provide an outer surface that does not need grinding and the outer edges would not be chipped or otherwise harmed by using a grinding process. McCormick teaches that using the thermal expansion separating process provides these advantages....

Applicants respectfully traverse that assertion. Applicants respectfully point out that the flat glass stock 2 of McCormick corresponds to the outer waste piece defined in Applicants' Claim 1. As pointed out in the Official Action, the outer waste piece is hand cut from the flat glass stock 2. Heating is not provided in order to cause the outer waste piece to expand relative to the middle portion of the work piece, element 8. That is, McCormick does teach providing an outer cut. However, the Official Action fails to describe why one of ordinary skill in the art would modify the hand cutting method disclosed in McCormick to remove that outer portion. Rather, the Official Action states that Claim 1 merely defines duplicating the same step twice in succession. Applicants respectfully traverse that characterization of Claim 1. In summary, the Official Action mis-ascertains the difference between the subject matter described in McCormick and defined by Claim 1 and fails to

provide any motivation for modifying the hand cutting method step described by McCormick. Hence, it is respectfully submitted that a *prima facie* showing under 35 USC 103(a) has not been made.

Claim 17 has been amended to clarify that the heating step is accomplished using a heating element having a heating surface. McCormick illustrates in Figure 5 that a flame 18 is used to heat the glass. Consequently, McCormick is not believed to anticipated the invention defined by Claim 17 as it is presently presented. Furthermore, neither Morgan et al, Kuramoto et al, Jackson, or Bian et al teach the step of heating a glass work piece using a heating element having a heating surface without mechanically contacting the major surfaces of the work piece. Consequently, McCormick is not believed to anticipate or render obvious the subject matter defined by Claim 17 when considered alone or in combination with the above-identified patents and publication.

Regarding Claim 24, the Official Action states that “McCormick’s scoring of the glass constitutes a ‘crack extending through the thickness of the work piece’ because ‘extending through’ does not require that the crack extending all the way through the work piece. A partial extension of the crack (scoring) is included in the language ‘extending through’”. In response thereto, Applicants have amended Claim 24 to clarify that the crack extends all the way through the thickness of the work piece. No further rejection on this basis is therefore anticipated.

Regarding Claim 36, the Official Action asserts that “it would have been *prima facie* obvious at the time the invention was made to combine Jackson’s teachings with McCormick’s glass cutting method because doing so would permit the efficient removal of waste glass from the cutting area using well-known vacuum removal means.” Applicants respectfully traverse that assertion. Applicants point out that Claim 36 defines the step of

moving one of the product piece or the waste piece so that the moved product piece or waste piece is in proximity to a vacuum chuck. McCormick teaches at page 2, column 2, lines 3-6 that the ring portion 8 is heated and will expand and finally drop away from the core portion 7 and be received by an annular sheet 26 of block 12. Jackson teaches at column 8, lines 48-53 that upon completion of a cutting, vacuum head 68 picks up individual parts 22 and cutout portions 23 and transfer them to a conveyor belt. Neither McCormick nor Jackson teach the step of moving either the product piece or the waste piece in proximity to the vacuum element. Hence, McCormick is not believed to anticipate or render obvious the subject matter defined by Claim 36 when considered alone or in combination with Jackson.

Claim 40 has been amended to clarify that the process includes the step of moving the adjacent waste piece or product piece using the temperature element in order that the waste and product pieces are displaced relative to one another. Regarding Claim 40, the Official Action asserts that “McCormick teaches moving the heating element because the work piece in Figure 3 is rotated. Thus, from the view point of the disk being treated, the burner is rotating.” Applicants respectfully point out, however, that Claim 40 defines moving the adjacent waste piece or product piece using the temperature element and does not merely define moving the temperature element. Hence, McCormick is not believed to anticipate or render obvious the subject matter defined by Claim 40.

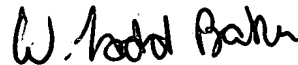
With regard to Claim 45, the Official Action took notice that “it is well-known in the glass making art to use vacuum tables with heaters installed therein and the vacuum set up having multiple channels for providing the required vacuum. This setup allows the glass to be heated while providing the necessary support of the glass.” Applicants hereby challenge that notice and hereby demand evidence of the same as soon as practicable.

In light of the above discussion, it is respectfully submitted that independent Claims 1, 17, 24, 36, 40, and 45 are patentably distinguishable from the applied patents and publication, and the dependent claims are therefore also patentably distinguishable from the same.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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IN THE CLAIMS

Please amend the claims as follows:

--17. (Amended) Method comprising:

providing a glass work piece that surrounds a waste piece;

heating the glass work piece using a heating element having a heating surface without mechanically contacting the major surfaces of said work piece;

cooling the waste piece, wherein the waste piece contracts relative to the work piece, and the work piece expands relative to the waste piece; and

separating the work piece from the waste piece.

24. (Amended) Method comprising:

providing a work piece comprising a crack extending all the way through the thickness of the work piece, said crack having a closed shape such that the crack surrounds a first portion of said work piece and is surrounded by a second portion of said work piece,

causing a temperature differential between said first and second portions such that the first portion has a greater temperature than the second portion, thereby facilitating the separation of the first and second portions.

40. (Amended) Method comprising:

providing a work piece and a waste piece;

placing one of the waste piece or the product piece adjacent to a temperature element, said temperature element changing the temperature of the adjacent waste piece or product piece so that the waste piece and produce pieces can be displaced relative to one another; and moving [the temperature element so that the temperature element moves] the adjacent waste piece or product piece[, whereby] using the temperature element in order that the waste and product pieces are displaced relative to one another.--